Programming Assignment III

Introduction:
In this assignment, you will get familiar with 3-D modeling using polygons. In addition, you will interface OpenGL with the windows environment and add features to the user interface.

General description:
A program is provided to you. The programs opens a window with menus. It reads the description of a 3-D object from a file and displays it. Once the object is displayed, pressing the arrows up or down rotates the object in one direction. The object provided is a simple cube.

You need to modify the program to do the following:

- Allow the user to rotate the object in all 3 directions.
- Allow the object to contain quads, triangles, triangle fans and triangle strips.
- Modify the “about” menu option so that it shows your name in addition to mine.
- Modify the “resize” so the aspect ratio of the object is preserved, like what you did in the second programming project.

In addition, you need to create a 3-D object input file. The object should be made of triangles and quadrilaterals. OpenGL uses 3 primitives with triangles: GL_TRIANGLES, GL_TRIANGLE_STRIP and GL_TRIANGLE_FAN, and 2 with quadrilaterals: GL_QUADS, GL_QUAD_STRIP. Each line of the input file should have one keyword, possibly followed by real numbers. The primitive keyword is not followed by any number. The GL_COLOR keyword is followed by 3 real numbers (no commas). The GL_VERTEX keyword is also followed...
by 3 real numbers (no commas). In addition, lines starting in “// ” are
comments and should be ignored.

**Due Date:** Wednesday, March 30, 2005, 11pm.

**Hand in:** Send your program and input file as attachments to our TA
(yalbayyar@utep.edu) and to me (longpre@cs.utep.edu).

**Grading:**

These grading guidelines will be used for all programming assignments. Your
project will be graded primarily on correctness (70%). The rest of your grade
will be determined by the style, ease of use, and interface of your program
and quality of input file (if required) (30%).

The penalty for a late homework is $n^2\%$ for $n$ days late up to one week late,
counting weekend days as well. Homework will not be accepted after one
week late, unless special arrangements have been made with the professor
before the one week is over.